MONTANA STATE UNIVERSITY–BILLINGS

BILLINGS, MONTANA

GRADUATE STUDIES

Measuring Language Acquisition and Literacy Development of Students in a Dual Immersion Program Versus Their Mainstream Classroom Peers: The First Two Years of a Dual Immersion Program

A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Education

Sara Kathleen Stephan

College of Education

November 2012

Measuring Language Acquisition of Students in a Dual Immersion Program Versus Their Mainstream Classroom Peers: The First Two Years of a Dual Immersion Program

ABSTRACT

Will participation in a Dual-Immersion program increase students English language literacy compared to their mainstream classroom peers? Literacy scores on the DIBELS and WIDA Access were assessed over two years for 144 students to see if English Language Learners (ELL) are having more success in English literacy acquisition than their mainstream classroom ELL peers and English natives in the Dual-Immersion program compared to their mainstream classroom peers. During the two years students in the Dual-Immersion program were taught half of their day in Spanish and half in English. Their mainstream classroom peers were taught completely in English. For the class of 2021 there is no pretreatment difference for any groups except for Dual ELL compared to Dual English natives, for PSF p=.020 and WUF p=.000. For the class of 2022 there was no pretreatment difference between any groups except for Dual ELL compared to Dual English natives, Dual ELL students were behind their native English speaking peers on every assessment on the DIBELS. For both the class of 2021 and 2022 there were no consistent significant differences between classes except for Dual ELL compared to Dual English natives. For the class of 2021 on post treatment assessment there was still significant difference in PSF p=.027 and WUF p=.002. For the class of 2022 pretreatment assessment showed significant difference on every assessment piece of DIBELS; in post treatment assessment there was still significant difference in ISF p=.004, LNF p=.026, PSF p=.044, WUF p=.001 and ORF p=.024. Based on the results the Dual Immersion program is showing successful because there are not significant differences across grade levels. It is however, not decreasing the gap between ELL and English natives within the Dual Immersion program.

TABLE OF CONTENTS

List of Tables

List of Figures

Introduction

With new practices showing up in education daily, there is the underlying assumption that what teachers are currently doing does not result in academic achievement. Dual Immersion or two-way bilingual education programs are starting to become more common in schools as a way to improve upon language practices that produce students who are not completely bilingual and instead promote better academic achievement for Spanish and English speaking participants (Alanis, 2000.)

The purpose of this study was to look at students, both English Language Learners (ELL) and English language natives, in a Dual Immersion classroom as compared to their mainstream classroom peers.

Research Questions

1. Overall the Dual Immersion students have greater success in literacy development in comparison to their mainstream peers?
2. Do ELL students in a Dual Immersion classroom exceed their mainstream peers in English language and literacy acquisition?
3. Does the Dual Immersion program help English natives literacy development exceed their mainstream classroom peers?
4. Does Dual Immersion help to shrink the achievement gap between ELL and native English speaking students?

Hypotheses

1. The first hypothesis is that the mainstream students will achieve higher literacy scores than the Dual students. This reasoning is based on prior research that

Dual Immersion students only surpass their mainstream peers in the 5th year of the program (Alanis, 2000).

2. The second hypothesis is that ELL students in the Dual Immersion class will achieve higher literacy scores than their mainstream ELL peers due to the instructional time they will receive in their first language (L1) (Wu, 2005).
3. The third hypothesis is that English language natives in the mainstream classroom will achieve higher literacy scores than their Dual Immersion peers. The reasoning is that this is the first and second year of the program and there has not been enough time to have a large impact on their learning.
4. The fourth hypothesis is that Dual Immersion will help to shrink the achievement gap between ELL and native English speaking students by educating ELL students in their L1 (Wu, 2005).

Review of Literature

History of Bilingual Education

Bilingual schools may seem like a new phenomenon in education with new programs starting every year. However, this is not the case. In fact, bilingual schools were common until the mid 1800's. At that point a new anti-immigrant mentality became widespread and psychologists proclaimed that exposure to more than one language made students "intellectually inferior"(Westley, 2011, p. 38). These thoughts began to be questioned in the 1960's with an increase in the Cuban population in Florida and the French speaking population in Maine (Wilson, 2011). Bilingual programs became

prevalent again in the 60's in south Florida. Cubans fleeing from the 1959 revolution requested that their children receive bilingual education. Coral Way Elementary was the first school to offer bilingual education to its students, and by 1974 the district reported that there were 3,683 students in the elementary bilingual program and 2,000 in the secondary program (Diaz-Rico & Weed, 2006).

Since then bilingual programs have become more prominent in school districts. From 1963-1968 there were four bilingual schools started in the United States and from 1989-1993 there were 113 bilingual schools (Christian, 1996). In 2008 only a quarter of elementary schools in the U.S. offered some form of foreign-language instruction (Westly, 2011). However, with rising popularity Dual Immersion programs have risen to more than 2,000 in the 2011-2012 school year (Maxwell, 2012). In addition to the number of schools increasing the second languages taught have also increased from just Spanish to Cantonese, Korean, Navajo, Japanese, Russian, Portuguese and French among many others (Christian, 1996). However, Spanish is still the most prevalent followed in popularity by Mandarin and French. Texas has the most programs provided in the United States, 700-800, and also has some of the most established (Maxwell, 2012). New York follows behind Texas with more than 300 Dual or bilingual programs in operation (McKay Wilson, 2011). Programs are even becoming more common around the world. There are Hungarian/Slovak schools in the Slovak Republic, and Maori/ English programs in New Zealand (Christian, 2001). These languages are not present in the majority of bilingual schools, but are aiding in developing bilingual education for the population needs of individual communities.

Canada has had a French Dual Immersion program in place since 1965. It began with a group of parents and university researchers who approached a school board outside of Montreal to start the investigational program that would teach the students in both French and English. The program was so successful that it began with one school and a few students and had evolved into 17,000 schools enrolling nearly 250,000 students (Safty, 1991). In addition to wanting their students to be bilingual, the Canadian program began in hopes of developing "more cross-cultural communications between French and English Quebecers" (Safty, 1991, p. 474). Canada attributes its program's success to the research done on the academic and linguistic benefits of bilingual education, the changing attitudes of Canadians in seeing themselves as an officially bilingual country, dissatisfaction with traditional second language methods, and emerging acceptance of being bilingual as a characteristic (Safty, 1991). Canada has gone beyond making this just a school issue and has instead made it a national issue. They have made it so " the second language is no longer a language to study, it is a language to be used" (Safty, 1991, p. 478).

Types of Bilingual Programs

There are varying forms of bilingual education in the United States, but the most prominent types in use are Transitional Bilingual Education, Maintenance Bilingual Education and Immersion Bilingual Education (Diaz-Rico & Weed, 2006). Transitional Bilingual Education's main goal is to move students into English-only classrooms. Initially they are taught in their first language for the first few years of elementary school

and then are moved into English only classrooms. This type of program gives students basic interpersonal communication skills (BICS), but does not help develop their cognitive academic language proficiency (CALP), which is necessary for students to succeed in the classroom (Diaz-Rico & Weed, 2006). Maintenance Bilingual Education programs are very similar to Immersion Bilingual Education programs in that they both emphasize the importance of achieving literacy in both languages, however, Maintenance programs typically only run from K through 6th grade, whereas Immersion programs often run K-12 (Diaz-Rico & Weed, 2006). Immersion schools are typically called Dual Immersion or Two-Way Bilingual schools. There are also One-Way Immersion programs. However, these programs only serve English natives, because of the lack of native speakers of the target language. I will focus on the Dual Immersion or Two-Way Bilingual programs for the remainder of this thesis.

Student Population

Dual Immersion programs are typically best implemented where the population of the school is 50:50: 50% of the population speaks English, the dominant language, and 50% of the population speaks a minority language. This is the ideal situation, but not always possible. As long as the program has at least one third of the population who can speak the minority language there can be success. However, if the program is composed of predominantly English speakers it is unlikely to produce truly bilingual speakers (Christian, Howard, & Loeb, 2000).

Language Instruction

When it comes to classroom instruction Dual Immersion programs can vary in length of daily teaching time, content area, or by person. There are two general models for how schools can vary the amount of instructional time taught in each language. Most elementary schools choose between the "90/10" model, where 90% of the day is taught in the minority language and 10% in the majority language starting in Kindergarten; this would then change with every consecutive year. For example if in Kindergarten they taught 90% of the day in Spanish and 10% of the day in English then in first grade they would teach 80% of the day in Spanish and 20% of the day in English and so on for the continuing years until the program reaches 50% English and 50% Spanish. The second model is the "50/50" model. With this model 50% of the day is taught in English and 50% of the day is taught in Spanish starting in Kindergarten and continuing throughout the program. This can be done with either one teacher designated the Spanish teacher and one being the English teacher and then rotating classes half way through the day or switching every day or week or with the use of a bilingual teacher who can teach half of the time in English and half of the time in Spanish. In addition Dual Immersion classes can separate languages by content area such as having language arts, math, and science are taught in Spanish while Social Studies, Art, and Music are taught in English or some other combination of subjects (Christian, Howard, & Loeb, 2000). In addition a program in Dallas has taken a unique approach in that various days are spoken in one language. An example is English Tuesday or Spanish Thursday (Pascopella, 2011).

Benefits and Challenges

Dual Immersion programs have proven successful in that students are reaching similar levels or surpassing achievement levels of their mainstream classroom counter parts within five years (Alanis, 2000). Dual Immersion classes encourage students to look to peers for help instead of seeing their teacher as the only source of assistance (De Jong, 2002). In addition to academic success for both groups of students, Dual Immersion programs are giving equal education opportunities for ELL students (Willig, 1985). As well, Dual Immersion programs take away the language of power and create an equal power between both languages. In this respect native Spanish speakers are able to feel empowered because not only are they achieving academic success, but they are also a model for English speaking students (Unger, 2001;Wu, 2005). Before these programs students were either being pulled from the regular classroom for ELL instruction, missing out on classroom activities, or being fully immersed in English education and not getting adequate instruction in their second language (Alanis, 2000). In a study of 17 experimental bilingual programs, 12 showed positive effects from instruction in the students L2, five showed no difference, but none of the studies favored English only instruction (Reese, Goldenberg, & Saunders, 2006).

In addition, the Dual Immersion program has given the Latino population the opportunity to develop their first language while learning their second language, which is an opportunity not available in the regular classroom. Research shows that it is cognitively and academically beneficial for students to develop their first language in order to acquire a second language (Cummins, 1979). In fact, the development of a

second language is partially dependent on the CALP that one already has in their first language (Cummins, 1979). In a study of bilingual Asian children and their emotional and behavioral health, researchers have found that the growth rate of both internal and external behavior problems was slower in bilingual students when compared to their English-only speaking counterparts (Han & Huang, 2010). Bilingual education is also making progress in the face of political adversaries. Growth in numbers of schools has even increased in the face of Arizona, Massachusetts, and California's English Immersion ballot initiatives (Maxwell, 2012).

The challenges that schools face in the implementation of Dual Immersion programs include trying to recruit and train qualified teachers (Morison, 1990). There are few if any collegiate programs that prepare teachers to teach in a Dual Immersion setting (Christian, Howard, & Loeb, 2000).

Additionally, it is troublesome to keep the program going past the primary grades due to factors like graduation requirements, electives, scheduling conflicts that inherently exist in the upper grades, and finding highly-qualified content teachers that are also bilingual (Christian, Howard, & Loeb, 2000).

A requirement for students to retain their new second language is to regularly use it. Current research shows that as students in Dual Immersion programs become older they do not use their second language fully (Broner, 2000). In Potowski's study she found that students used the L2 (Spanish) primarily with their teachers, 82% of the time, and less often with their peers, 32% of the time (Potowski, 2004). The second language

is often used when talking about academic topics, while the first language is used in social contexts (Broner, 2000).

Development of Phonological Awareness in ELL Students

Before starting to analyze the pieces of a literacy program and how they are effective it is important to understand how students acquire a language and become literate in it. Anthony, Solari, Williams, Schoger, and Zhang's research (2009) found the origins of children's phonological awareness to be elusive. This is even more challenging in Dual Immersion programs as two language systems are involved. However, research has shown that phonological awareness skills transfer across languages (Anthony, Solari, Williams, Schoger & Zhang, 2009).

There are two main theories in the development of phonological awareness. The first theory being the lexical restructuring model and the second being the psycholinguistic grain size theory. The lexical restructuring model states that in early childhood words are represented by whole-word and syllable-level speech patterns (Anthony, Solari, Williams, Schoger & Zhang, 2009). This model has two fundamental concepts. The first is that in the development of a second language, the key to phonological restructuring is vocabulary development and growth. The second is that in phonological restructuring there is a highly sensitive phonological awareness (Anthony, Solari, Williams, Schoger & Zhang, 2009). This model shows that students segment their vocabulary. They begin by knowing a holistic representation of a word, yet with minimal phonemic awareness about that word. An example of such an instant is site word

knowledge. With a growing vocabulary students must develop a more phonemically detailed understanding of words to differentiate existing words from new words. For example if a student knows the word can then they must have the phonemic awareness of the CVCE rule to be able to read the word cane. This theory proposes steps to phonological awareness. The first is the ability to manipulate syllables, the second is the ability to manipulate onsets and rimes, and the third is phonological awareness. Consistent with this model Chiappe, Chiappe and Goottardo (2004) and Metsala (1997) have found that vocabulary is positively correlated with phonological awareness.

The second model is the psycholinguistic grain size theory. This theory emphasizes the importance of a person's L1 and literacy instruction in it along with repeated interactions with phonological characteristics of the L1. This model states that phonological awareness does not occur before formal literacy instruction. Support for this was shown in Chiappe, Chiappe, and Gottardo's study that showed children and adults who were poor readers have little awareness of phonemes.

Methods

Students

The students in this study (N=144) were enrolled at Davey Jackson Elementary in the Teton County School District #1 (TCSD) in Jackson, WY in the 2009-2010 and 2010-2011 school years. Students were between the ages of 5 and 8 during the duration of the study. The study began with 155 students; 15 moved out of district. Seventy-two of the students are in the graduating class of 2022, 39 in the Dual Immersion class and 33

in mainstream classrooms. Of the 39 Dual Immersion students 17 are English Language Learners (ELL), of the 33 mainstream students 12 are ELL. Sixty-eight students are in the graduating class of 2021, 38 in the Dual Immersion classroom and 30 in mainstream classrooms. Of the 38 Dual Immersion students, 15 are ELL and of the 30 mainstream students six are ELL.

Setting

Davey Jackson Elementary is a K-2 school, which serves approximately 540 students, of which approximately 50% of the incoming Kindergarteners are ELL and 15% are on the Free and Reduced lunch program (Ransom, 2012). Students were chosen for the Dual Immersion program through a lottery that parents had to sign up for in advance. In the lottery, students are divided by native language spoken in order to choose an equal number of native Spanish speakers and an equal number of English natives comprise the class. Additionally, the lottery used the proportions of the incoming Kindergarten class (gender and Kindergarten readiness) to ensure that the Dual Immersion classrooms mirror the demographics of the mainstream classroom. In addition there was a list of preferences that went into creating the class based on encouraging Spanish teacher recruitment, balancing internal district support of the program and external community support, and that followed existing district enrollment policies and state statutes.

Preference List

1. Students whose siblings are already enrolled in the Dual program

2. Students whose parents teach in the Dual Immersion program
3. Students of other district employees (not to exceed 10%)
4. Students whose families reside within Teton County, WY
5. Students whose families reside out of the Jackson Elementary boundaries, but within the Teton County School District boundaries
6. Students who reside outside of the TCSD boundaries but within the state of WY (Ransom, 2010).

In addition to the lottery system, it is also a strongly made point that students' long-term participation is key to program success (Ransom, 2010). It is important that parents convey the importance of involvement in the program in order for students to find the same meaning and value in being bilingual and biliterate (Ransom, 2010). Parents who register for the lottery are required to sign a commitment letter that if they remain in Teton County School District they have committed to the Dual Immersion program through at least 5th grade.

In the Dual Immersion program Davey Jackson Elementary opted to implement the 50:50 model. The English side teaches Reading, Science and Social Studies. The Spanish side teaches Reading, Writing and Math (Ransom, 2008). A model Kindergarten schedule is seen in Table 1. There are 20 students in each Dual Immersion class, with ideally 10 being native Spanish speakers and 10 being English natives.

Table 1: Model Kindergarten Dual Immersion Schedule

School Schedule	English Teacher	Spanish Teacher
9:00-9:15	Opening	Opening
9:15-10:00	Sci/SS [45]	Math [45]
10:00-10:15	Start Language Arts [15]	Start Language Arts [15]
10:15-10:30	*Recess*	
10:30-11:40	Language Arts [70]	Language Arts [70]
11:40-12:35	Lunch	
Students Switch Classes/Languages		
12:35-12:55	Sci/SS [20]	Math [40]
12:55-1:15	Language Arts [70]	
1:15-2:05		Language Arts [50]
2:05-2:55	Specials	
2:55-3:15	Closing	Closing

Sci-Science SS-Social Studies Specials- PE, art, music, etc.

Teachers

The first year the program started with two Kindergarten classes and two first grade classes. Teacher selection for the English side of Dual Immersion drew from current teachers who expressed an interest in teaching the English side of the program.

The Spanish side hired native speaking teachers, one from California and one from Texas. Both Spanish teachers were first year teachers. In addition, to prepare for the development of the program, a native Spanish teacher was hired one year ahead of the start date. The second grade Spanish teacher for the second year of the program was hired the first year from Mexico and worked as an ELL teacher the first year. The following year she taught second grade Spanish.

Measures

No new data were collected from students because the district felt that they were assessed enough. The district provided all data and all tests were conducted by the school district. ELL students are given the Access test from World-Class Instructional Design and Assessment (WIDA) every spring. This state-mandated test is given to monitor students' progress in English language acquisition. The test assesses the four language domains: listening, speaking, reading, and writing. Within these domains the test is divided into subgroups based on grade as well. The subgroups are as follows: Kindergarten, Grades 1-2, Grades 3-5, Grades 6-8 and Grades 9-12. These subgroups are then divided into three tiers in all sub groups except for Kindergarten. Tier A is designed for students who have arrived to the U.S. within the current school year, receive instruction only in their native language or students who have tested into the lowest proficiency of the English language. Tier B is appropriate for students who have social language, but not academic language. These students are typically not yet at grade level literacy. Tier C is for students who are at grade level literacy and have both social and

academic vocabulary established, students who are approaching grade level literacy, or students who are expected to pass the state exit exam for receiving services by the end of the year. The purpose of the tiers is to make the test shorter and more appropriately meet each student's range of abilities. The Access test scores student English Language Proficiency (ELP), in relation to WIDA standards, on a scale of 1-6. ("Wida:access for ells," 2011). In Kindergarten all portions of the test were administered individually. The listening, reading, and writing portions for all other grades can be administered in groups of up to 22 students. The speaking section is always administered individually. In addition the speaking domain is not tiered. The listening and reading domains of the assessment contain multiple-choice questions. The writing section requires that the student produce a written response. For the speaking domain, which is not tiered, students in the same grade level take the same assessment. Items are presented in the speaking domain until the student reaches their performance "ceiling." In Kindergarten all students take the same test. Each student takes the same test twice, once with an expository section and once with a narrative section. The speaking and listening sections are given simultaneously in Kindergarten, alternating back and forth between tasks. Like the speaking domain for all other grades, the Kindergarten assessment is given until students reach their performance "ceiling"("Wida:access for ells," 2011).

Dynamic Indicators of Basic Early Literacy Skills (DIBELS) was the second assessment measure used in this study. The DIBELS test was chosen because it is a reliable predictor of later reading achievement, has alternate forms for monitoring progress, and has multi-probe reliability exceeding .95 (Good III & Kaminski, 1996).

Students are given the DIBELS exam a minimum of three times during the school year: fall, winter and spring. If students do not reach benchmark at any of these three times the student is then progress monitored every other week with the DIBELS test. After successfully benchmarking three consecutive times students discontinue progress monitoring and continue with testing the traditional three times a year ("DIBELS 6th edition," 2012).

In the DIBELS test there are multiple measures that continue and discontinue through grade levels (Calhoon, Al Otaiba, Cihak, King & Avalos, 2007). In Kindergarten students are tested in Initial Sound Fluency (ISF), Letter Naming Fluency (LNF), Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency-Correct Letter Sounds (NWF CLS), Nonsense Word Fluency-Words Read Correctly (NWF WRC) and Word Use Fluency (WUF). In 1st Grade ISF is discontinued and Oral Reading Fluency (ORF) and Retell Fluency (RTF) are added. In 2nd grade LNF and PSF are discontinued and the other assessment measures remain (Calhoon, Al Otaiba, Cihak, King & Avalos, 2007).

ISF is assessed when the examiner shows the child four pictures and names each one. The examiner then asks the child to identify which picture begins with the sound that the examiner produces. For LNF students are given a sheet of paper with upper and lower case letters. They are asked to name as many of the letter's as possible in one minute. They are made aware that if they do not know a letters name that the examiner will tell it to them. The score is the number of correct responses in one minute. PSF tests a student's ability to segment three-and four-phoneme words into their individual phonemes correctly. The examiner orally reads the child a word that is three or four

phonemes and the student must correctly state the individual phonemes correctly. For example a student's correct response for "miss" is "/m/ /i/ /s/". Each correct phoneme is worth one point. NWF assesses a student's alphabetic principle knowledge, or letter to sound correlation. Students are given a two or three-letter nonsense word and given one minute to correctly reply as to how the word would sound if it were a real word. Students can individually say the phoneme sounds or read the word completely. Students are rewarded with more points for fluently reading the entire word versus the individual phonemes. WUF is a measure of a child's use of a word in a sentence. The examiner gives the student a word and asks them to use it in a sentence. The score is the number of words the child correctly used in the sentence. ORF assesses a child's accuracy and fluency when reading a passage. The examiner gives the child a passage to read for every mispronunciation or mistake that the child makes a point is deducted. If the child hesitates for longer than three seconds then the word is counted wrong, the examiner reads the word correctly and the student continues reading. The number of words correct per minute is the student's ORF score ("DIBELS 6th edition," 2012).

Results

Pretreatment Analysis

To make sure that there were no significant pretreatment differences between the Dual and Mainstream groups, a series of independent sample t-tests were conducted. Independent sample t-tests were used since there being two independent groups. Dual and

Mainstream students. No significant differences were found between Dual and Mainstream students of the 2021 class in Reading performance at the fall administration

- PSF, $t(66)=.307$, $p=.760$;
- NWF CLS $t(66)=.412$ $p=.682$;
- NWF WRC $t(66)=-.05$ $p=.960$;
- WUF $t(66)= -.455$ $p=.946$;
- ORF $t(66)=-.037$ $p=.971$.

Means and standard deviations for all DIBELS testing administrations of the 2021 class (Fall 2009- Summer 2011) are provided on Table 2.

Table 2. Means and Standard Deviation for all DIBELS assessments for the class of 2021

Independent sample t-tests were performed again to assess pretreatment differences of the 2022 class. No significant differences were found between Dual and Mainstream students of the 2022 class in Reading performance at the fall administration in 2009 of

- ISF $t(70)=.069$, $p=.866$;
- LNF $t(69)=-.139$, $p=.923$;
- WUF $t(70)=-.971$, $p=.363$;

And in the winter administration in 2010

- NWF CLS $t(70)=-.256$, $p=.799$;
- NWF WRC $t(70)=.017$, $p=.987$;
- PSF $t(70)=-1.527$, $p=.131$;

And in the winter administration in 2011

- ORF $t(69)=.584$, $p=.665$.

Means and standard deviations for all DIBELS testing administrations of the 2022 class (Fall 2009- Summer 2011) are provided on Table 3.

Table 3. Means and Standard Deviations for all DIBELS assessments for the class of 2022

Independent sample t-tests were run on the WIDA Access tests given to the ELL students of the 2021 class at the end of the first year of the study. There were no significant differences between ELL students in the Dual Immersion program or ELL students in the Mainstream classroom of

- Speaking $t(19)=-1.392$, $p=.672$;
- Listening $t(19)=.259$, $p=.476$;
- Reading $t(19)=.829$, $p=.731$;
- Writing $t(19)=-1.123$, $p=.058$;
- Oral Language $t(19)=.545$, $p=.528$;
- Literacy $t(19)=-.461$, $p=.117$;
- Comprehension $t(19)=.788$, $p=.630$;
- Overall Score $t(19)=.153$, $p=.231$.

Means and Standard Deviations for the WIDA assessment for the class of 2021 can be found on Table 4. Independent sample-tests were also run on the DIBELS data to check for pretreatment difference within the Dual ELL students and the mainstream ELL students for the class of 2021. There were no significant differences in the fall 2009 administration of

- LNF $t(19)=-.108$, $p=.915$;
- PSF $t(19)=-.400$, $p=.694$;
- NWF-CLS $t(19)=.485$, $p=.633$;
- NWF-WRC $t(19)=.034$, $p=.973$;
- WUF $t(19)=.250$, $p=.805$;

There was no significant difference of the winter 2010 administration of

- ORF $t(19)=.067$, $p=.940$.

Table 4. Means and Standard Deviations for WIDA-Class of 2021

Group		Mean	Std. Deviation
Speaking2010	Dual	346.3333	41.53427
	Main	372.5000	30.46802
Speaking2011	Dual	339.0667	30.02491
	Main	372.5000	30.46802
Listening2010	Dual	292.6667	16.09644
	Main	290.5000	20.27560
Listening2011	Dual	344.8667	24.94814
	Main	331.1667	29.84236
Reading2010	Dual	290.5333	6.55599
	Main	287.1667	12.17237
Reading2011	Dual	323.0667	20.49553
	Main	325.6667	36.90890
Writing2010	Dual	267.2000	14.31383
	Main	274.3333	9.15787
Writing2011	Dual	297.1333	15.50975
	Main	289.3333	9.35236
OralLanguge2010	Dual	319.8000	25.32982
	Main	313.0000	27.10719
OralLanguage2011	Dual	342.0667	24.06677
	Main	352.1667	26.13363
Literacy2010	Dual	278.9286	8.84451
	Main	281.0000	10.07968
Litearcy2011	Dual	310.2667	16.06890
	Main	307.8333	22.07638
Comprehension2010	Dual	291.6429	7.78171
	Main	288.0000	12.86857
Comprehension2011	Dual	329.6000	19.71511
	Main	327.1667	30.70776
Overall2010	Dual	291.4286	11.57394
	Main	290.5000	14.43260
Overall2011	Dual	319.6667	17.61358
	Main	320.8333	21.16995

The same WIDA Access test was also given to the class of 2022 at the end of the first year of the study and there was no significant difference between ELL students in

Dual Immersion or ELL students in Mainstream classroom when independent sample t-tests were run on

- Listening t(26)=.704, p=.487;
- Speaking t(26)=-.310, p=.759;
- Reading t(26)=-.070, p=.945;
- Writing t(26)=.025, p=.980;
- Oral Language t(26)=.278, p=.783;
- Literacy t(26)=-.026, p=.980;
- Comprehension t(26)=.165, p=.870;
- Overall Score t(26)=.064, p=.950.

Means and standard deviations for the class of 2022's WIDA Access scores can be found on Table 5 Means and Standard Deviation for all WIDA assessments for the class of 2022. Independent sample-tests were also run on the DIBELS data to check for pretreatment difference within the Dual ELL students and the mainstream ELL students for the class of 2022. There was no significant difference in the fall 2009 administration of

- ISF t(25)=.907, p=.373;
- LNF t(25)=-.746, p=.462;
- WUF t(25)=.674, p=.507;
- PSF t(26)=-.251, p=.804;
- NWF-CLS t(26)=-1.305, p=.212;
- NWF-WRC t(26)=.360, p=.710;

- ORF t(26)=.385, p=.704.

Table 5. Mean and Standard Deviations for WIDA Results-Class of 2022

Table 5

Mean and Standard Deviations for WIDA Results-Class of 2022

Group		Mean	Std. Deviation
Listening.10	Dual	268.3750	65.44603
	Main	251.7500	56.46580
Listening11	Dual	304.3750	23.86036
	Main	302.9167	16.11018
Speaking10	Dual	262.6875	35.82126
	Main	268.2500	58.89455
Speaking11	Dual	343.5625	39.74748
	Main	341.7500	39.71289
Reading10	Dual	187.3125	68.97895
	Main	189.0000	54.62267
Reading11	Dual	286.4375	22.18699
	Main	284.0833	14.53184
Writing10	Dual	208.5625	53.89863
	Main	208.0000	63.00649
Writing11	Dual	268.2500	16.88194
	Main	267.2500	14.30273
OralLanguage10	Dual	265.7500	47.70954
	Main	260.3333	55.33425
OralLanguage11	Dual	324.2500	25.91396
	Main	322.5833	20.94781
Literacy10	Dual	198.1875	59.43985
	Main	198.7500	55.18914
Litearcy11	Dual	277.5625	16.16568
	Main	275.9167	13.20095
Comprehension10	Dual	211.5625	60.44278
	Main	208.0000	50.97771
Comprehension11	Dual	291.8125	21.19503
	Main	289.8333	14.01839
OverallScore10	Dual	218.2500	51.51634
	Main	217.0000	51.31365
OverallScore11	Dual	291.3750	17.36615
	Main	289.7500	14.56100

Independent sample t-tests were run to determine pretreatment differences between the native English-speaking students in Dual Immersion versus the native English-speaking students in the mainstream classroom for the class of 2021. There was no significant difference in the assessment of reading performance at the fall 2009 administration of

- LNF $t(45)=.538$, $p=.593$;
- PSF $t(45)=1.140$, $p=.260$;
- NWF-CLS $t(45)=.431$, $p=.669$;
- NWF-WRC $t(45)=.195$, $p=.846$;
- WUF $t(45)=.766$, $p=.448$;
- ORF $t(45)=.383$, $p=.704$.

Independent sample t-tests were run to determine pretreatment differences between the native English-speaking students in Dual Immersion versus the native English-speaking students in the mainstream classroom for the class of 2022. There was no significant difference in the assessment of reading performance at the fall 2009 administration of

- ISF $t(34)=.018$, $p=.986$;
- LNF $t(34)=.099$, $p=.922$;
- WUF $t(34)=-.414$, $p=.682$,
- PSF $t(34)=-1.062$, $p=.296$;
- NWF-CLS $t(34)=-.149$, $p=.883$;
- NWF-WRC $t(34)=-.780$, $p=.441$;

- ORF t(32)=-.788, p=.637.

Independent sample t-tests were run to determine pretreatment differences between the Dual Immersion ELL and native English-speaking students in the class of 2021. There was no significant difference in the assessment of Reading performance at the fall 2009 administration of

- NWF CLS t(36)=.875, p=.387;
- NWF WRC t(36)=1.145, p=.260;
- ORF t(36)=1.984, p=.055.

There was significant difference in the assessment of Reading performance at the fall 2009 administration of

- PSF, *t* (36)=2.440, p=.020
- WUF t(36)= 3.914 p=.000.

Independent sample t-tests were used to determine pretreatment differences between the Dual Immersion ELL and native English-speaking students in the class of 2022. There was significant difference in the assessment of Reading performance at the fall administration in 2009 of

- ISF t(28)=3.578, p=.001;
- LNF t(29)=3.610, p=.001;
- WUF t (28)=4.117, p=.000;
- NWF CLS t(29)=3.462, p=.002;
- NWF WRC t(29)=2.638, p=.013
- PSF t(29)=2.697, p=.012;

- ORF t(28)=2.507, p=.018

Post Treatment Analysis

RQ 1. Overall do Dual Immersion students have greater success in literacy development in comparison to their mainstream peers?

(Class of 2021)

Independent sample t-tests were run on the DIBELS assessment. For the class of 2011 there was no significant difference in the final assessment in the summer of 2010 of

- PSF t(66)=-1.29, p=.846;

in the Summer 2011 assessment of

- WUF t(62)=-.445, p=.493;
- ORF t(62)=.835, p=.733.

There was a significant difference in the testing of summer 2010

- NWF CLS t(66)=2.434 p=.018;
- NWC WRC t(66)=1.996 p=.050;

There was a significant difference in the testing of fall 2010

- NWF CSL t(66)=2.092 p=.040
- NWF WRC t(66)=2.262 p=.027.

The average NWF-CLS scores for Dual and Mainstream students in the class of 2021 are shown in Figure 1. The average NWF-WRC scores for Dual and Mainstream students

in the class of 2021 are shown in Figure 2. The average scores of the final assessments of each Dibels subtest for the class of 2021 are shown in Figure 3.

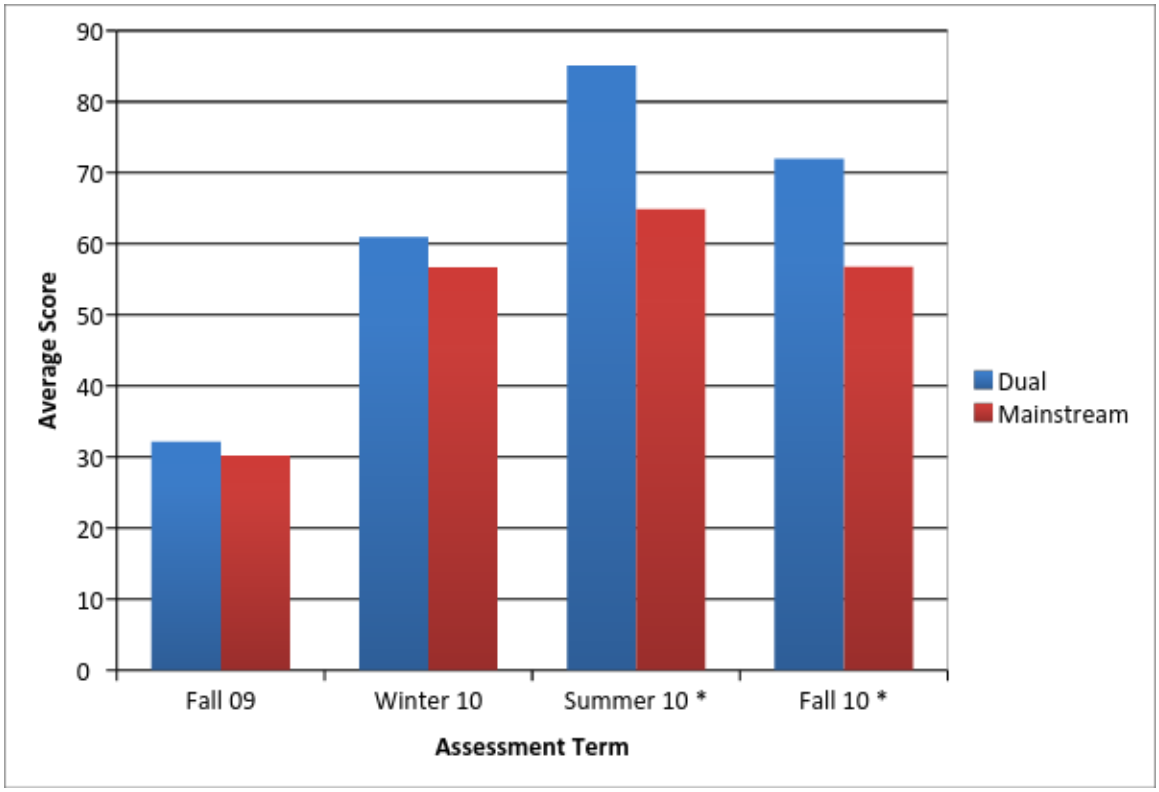

Figure 1. Average NWF-CLS Scores for Dual and Mainstream Students Class of 2021

*P ≤ .05

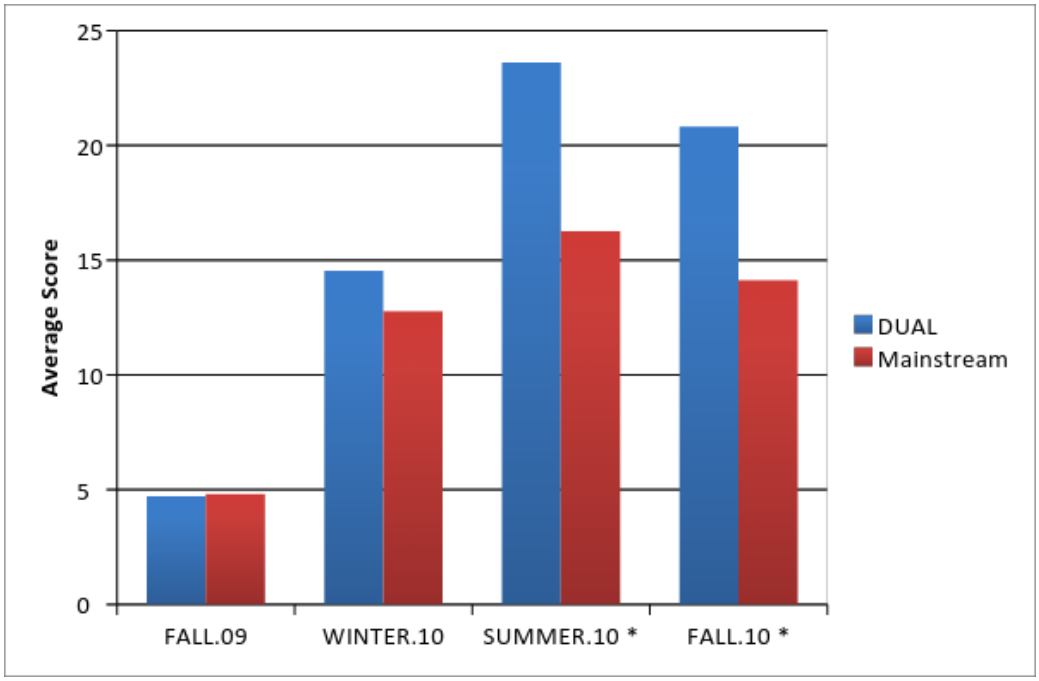

Figure 2. Average NWF-WRC Scores for Dual and Mainstream Students Class of 2021

*P ≤ .05

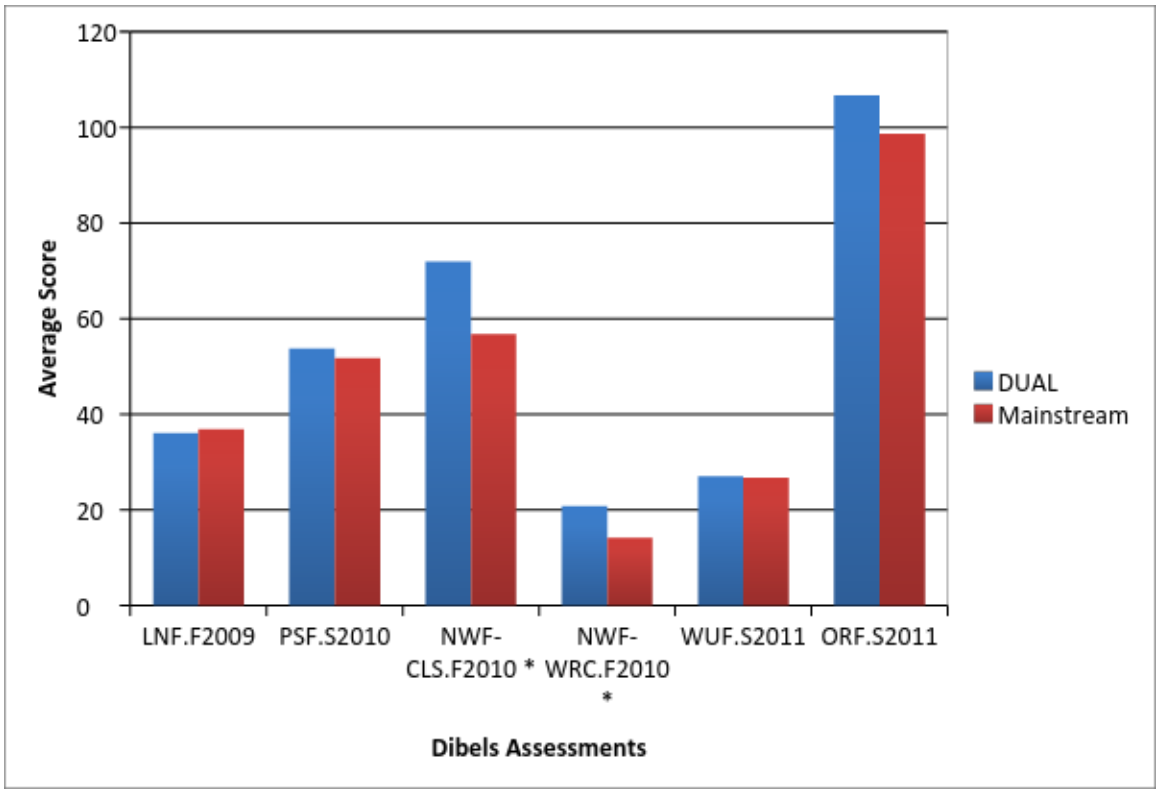

Figure 3. Average Score on Final Dibels Assessment-Class of 2021 *P ≤ .05 ***(Class of 2022)***

Independent sample t-tests were run on the DIBELS assessment for the class of 2022.

There was no significant difference in the final assessment in the winter of 2010 of

- ISF t(70)=.344, p=.732;

There was no significant difference in the fall 2010 assessment of

- LNF t(70)=-.241, p=.810;

There was no significant difference in the summer 2011 assessment of

- PSF t(69)=1.125, p=.265;
- WUF t(69)=.886, p=.379;
- NWF CLS t(69)=.685, p=.495;
- NWF WRC t(69)=.299, p=.766;

- ORF t(69)=.437, p=.664.

The average scores of the final assessments of each Dibels subtest for the class of 2022 are shown in Figure 4.

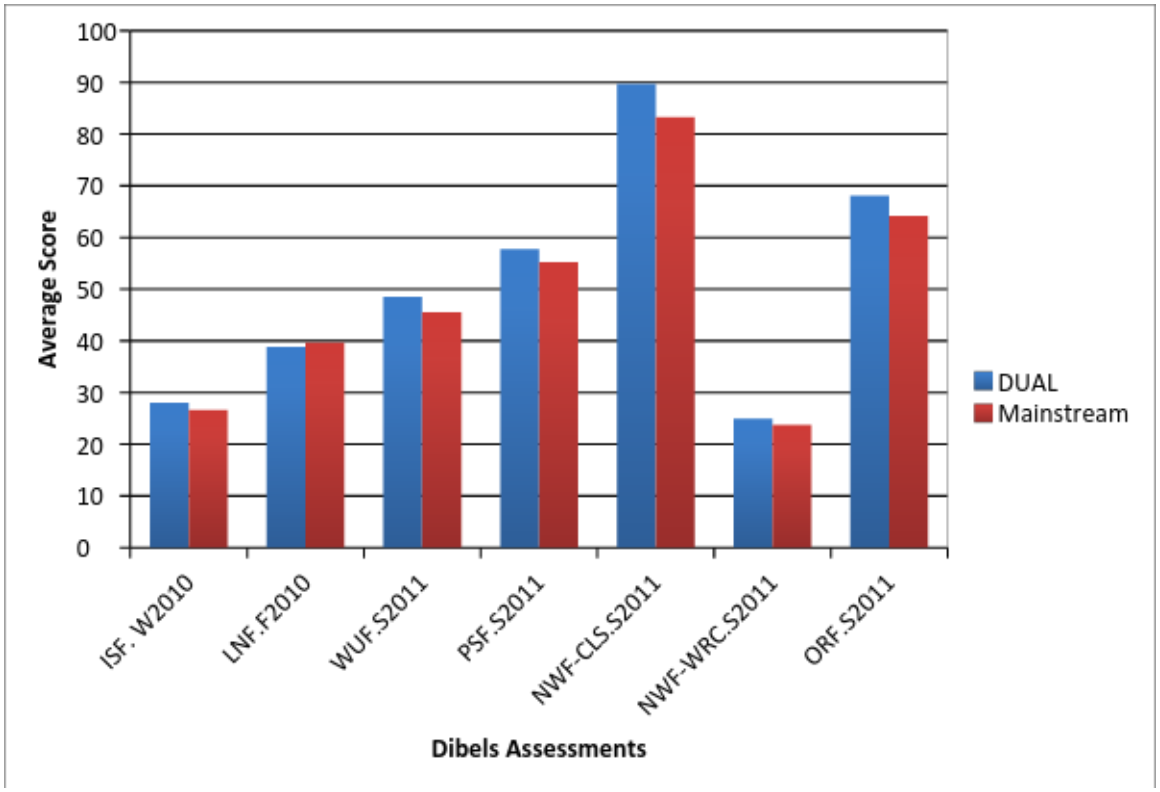

Figure 4. Average Score on Final DIBEL Assessment-Class of 2022
*P ≤ .05

RQ 2. Do ELL students in a Dual Immersion classroom exceed their mainstream peers in English language and literacy acquisition?

(Class of 2021)

The second research question addresses ELL student English language and literacy acquisition. Independent sample t-tests were run on the DIBELS and WIDA data of these

students. For the class of 2021 there was no significant difference in the final assessment in the Summer of 2010 of

- PSF t(19)=.404, p=.765;

There was no significant difference in the Summer 2011 assessment of

- WUF t(18)=.153, p=.880;
- ORF t(18)=.777, p=.448;

There was significant difference in the testing of summer 2010

- NWC WRC t(19)=2.186, p=.042;

There was significant difference in the testing of fall 2010

- NWF CLS t(19)=2.390 p=.027.

The average scores of the NWF-CLS assessment of ELL students for all testing administrations of the 2021 class are shown in Figure 5.

Independent sample t-tests were also run on the WIDA data. There was no significant difference in the final assessment given in the summer of 2011 in

- Listening t(14)=.091, p=.929;
- Reading t(14)=-.670, p=.514;
- Writing t(14)=.720, p=.483;
- Literacy t(14)=-.305, p=.765;
- Comprehension t(14)=-.503, p=.623;
- Overall Score t(14)=-1.059, p=.308.

There was a significant difference in

- Speaking t(14)=-3.798, p=.002;

- Oral Language t(14)=-2.166, p=.048.

The average speaking scores on the WIDA assessment are shown in Figure 6. The average oral language scores on the WIDA assessment are shown in Figure 7.

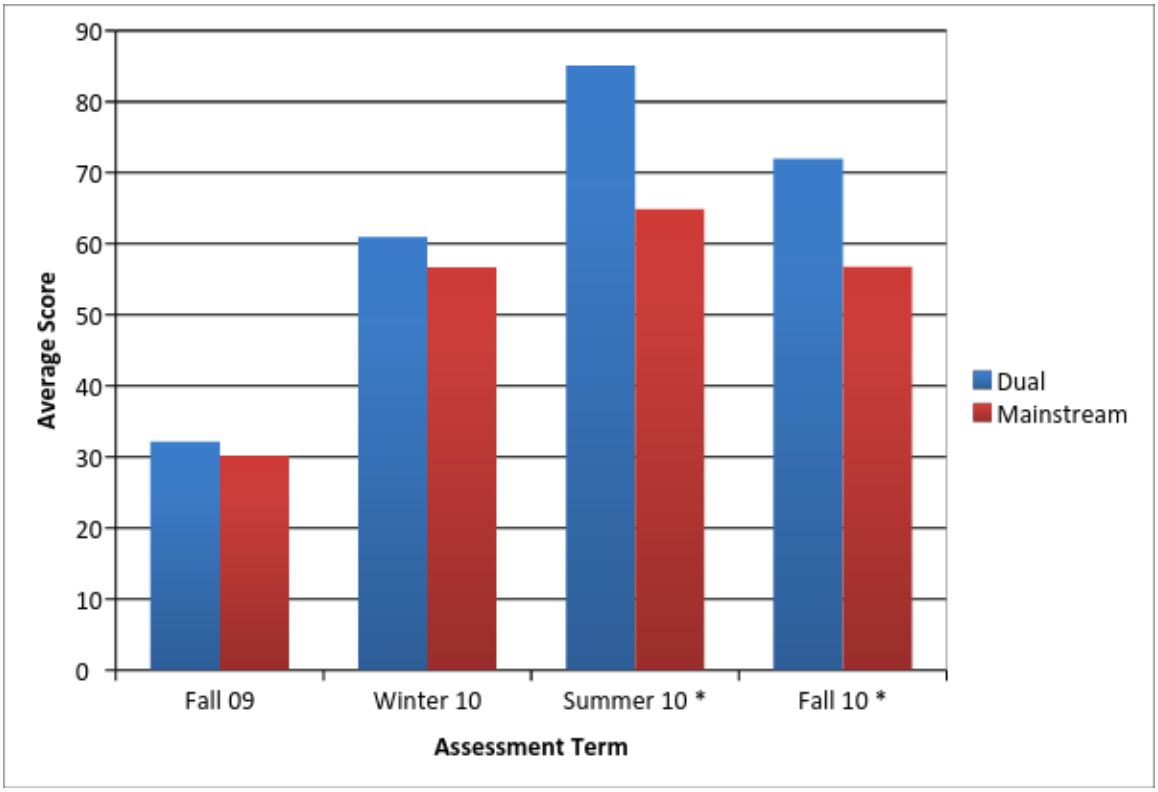

Figure 5. Average NWF-CLS scores for ELL Students in the Class of 2021 *P ≤ .05

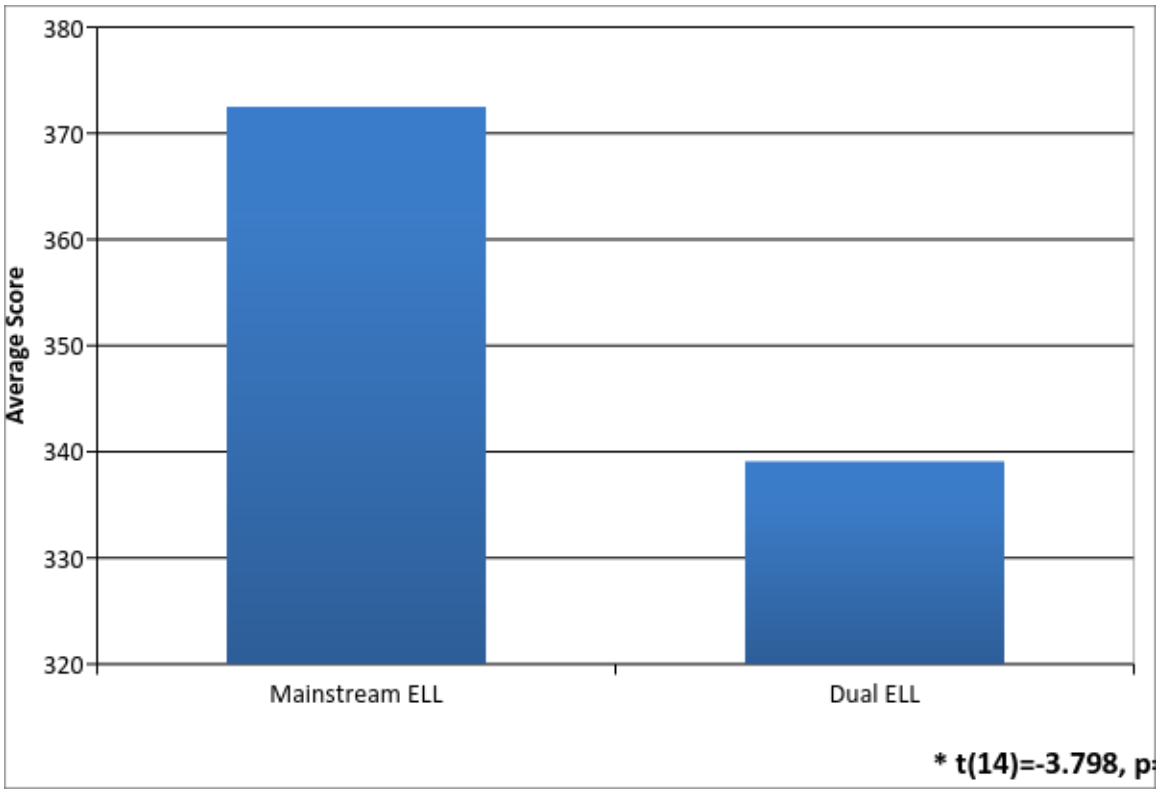

Figure 6. Average Speaking Scores on WIDA Speaking Assessment 2011 *P ≤ .05

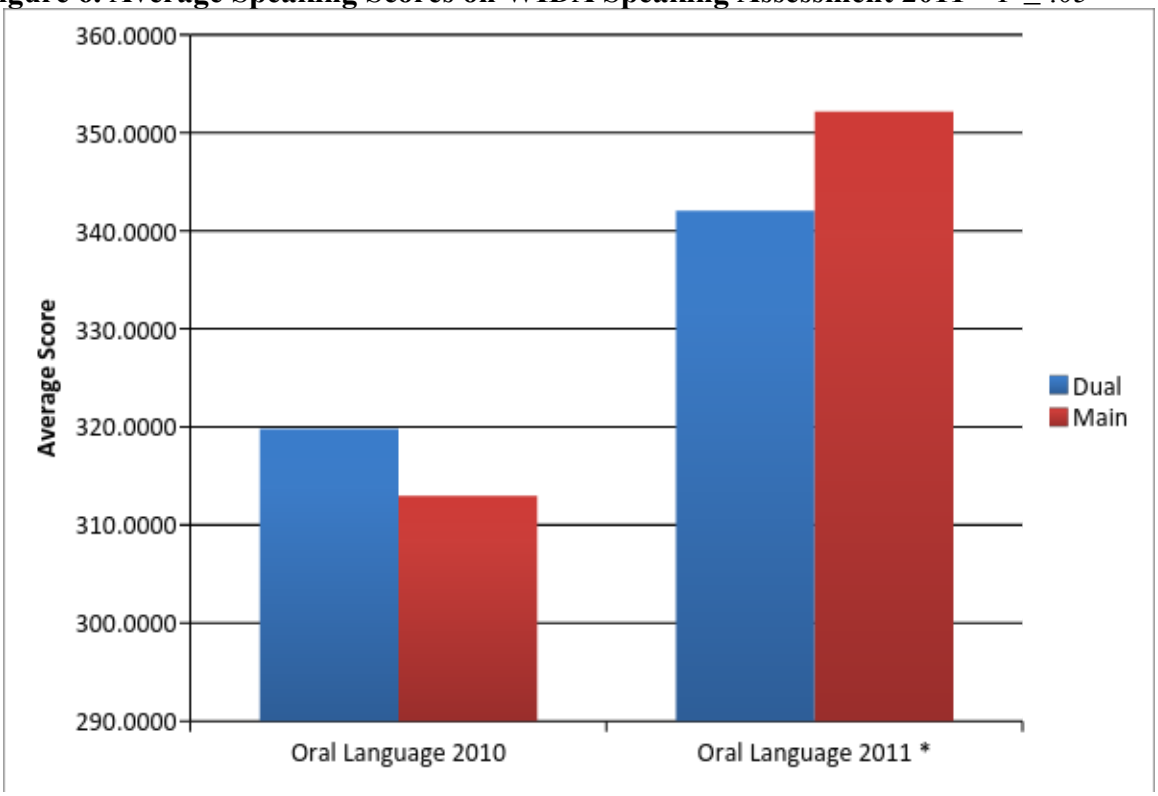

Figure 7. Average Scores on WIDA Oral Language Assessment Class of 2021

*P ≤ .05

(Class of 2022)

Independent sample t-tests were run on the DIBELS assessment for Native English students in the class of 2022. There was no significant difference in the final assessment in the winter of 2010 of

- ISF t(26)=1.755, p=.091;

There was no significant difference in the fall 2010 assessment of

- LNF t(26)=-.222, p=.826;

There was no significant difference in the summer 2011 assessment of

- PSF t(26)=.738, p=.467;
- WUF t(26)=.375, p=.074;
- NWF CLS t(26)=-.073, p=.943;
- NWF WRC t(26)=.013, p=.990;
- ORF t(26)=-.051, p=.960.

Independent sample t-tests were also run on the WIDA data. There was no significant difference in the final assessment given in the summer of 2011 in

- Listening t(26)=.182, p=.857;
- Speaking t(26)=.119, p=.906;
- Reading t(26)=.319, p=.752;
- Writing t(26)=.165, p=.870;
- Oral Language t(26)=.182; p=.857;

- Literacy t(26)=.288, p=.776;
- Comprehension t(26)=.280, p=.782;
- Overall Score t(26)=.262, p=.795.

RQ 3. Do English natives literacy developments exceed their mainstream classroom peers?

(Class of 2021)

The third question addresses native English speaking Dual Immersion student's literacy development compared to their mainstream counterparts. Independent sample t-tests were run on the DIBELS assessment. For the class of 2011 there was no significant difference in the final assessment in the Summer of 2010 of

- PSF t(45)=1.115, p=.271;

There was no significant difference in the Fall 2010 assessment of

- NWF CLS t(45)=1.078, p=.070;
- NWF WRC t(45)=1.594, p=.237;

There was no significant difference in the Summer 2011 assessment of

- WUF t(42)=.334 p=.740;
- ORF t(42)=.922, p=.362.

(Class of 2022)

Independent sample t-tests were run on the DIBELS assessment for Native English students in the class of 2022. There was no significant difference in the final assessment in the winter of 2010 of

- ISF $t(34)=-.618$, $p=.541$;

There was no significant difference in the fall 2010 assessment of

- LNF $t(34)=.211$, $p=.834$;

There was no significant difference in the summer 2011 assessment of

- PSF $t(34)=1.467$, $p=.152$;
- WUF $t(33)=1.633$, $p=.112$;
- NWF CLS $t(33)=.188$, $p=.852$;
- NWF WRC $t(33)=1.467$, $p=.725$;
- ORF $t(33)=-.008$, $p=.993$.

RQ 4. Does Dual Immersion help to shrink the achievement gap between ELL and native English speaking students?

(Class of 2021)

Independent sample t-tests were run on the DIBELS assessment. For the class of 2011 there was no significant difference in the testing of summer 2010 for

- ORF $t(32)=1.212$, $p=.096$;

There was no significant difference for the testing of fall 2010

- NWF CLS $t(36)=-.825$, $p=.415$;

- NWC WRC t(36)=.035, p=.973.

There was a significant difference in the final assessment in the summer of 2010 of

- PSF t(36)=2.312, p=.027;

There was a significant difference in the Summer 2011 assessment of

- WUF t(32)=3.427, p=.002.

The average scores for all assessments of PSF can be seen in Figure 8 and the average scores for all assessments of WUF for the class of 2021 can be seen in Figure 9.

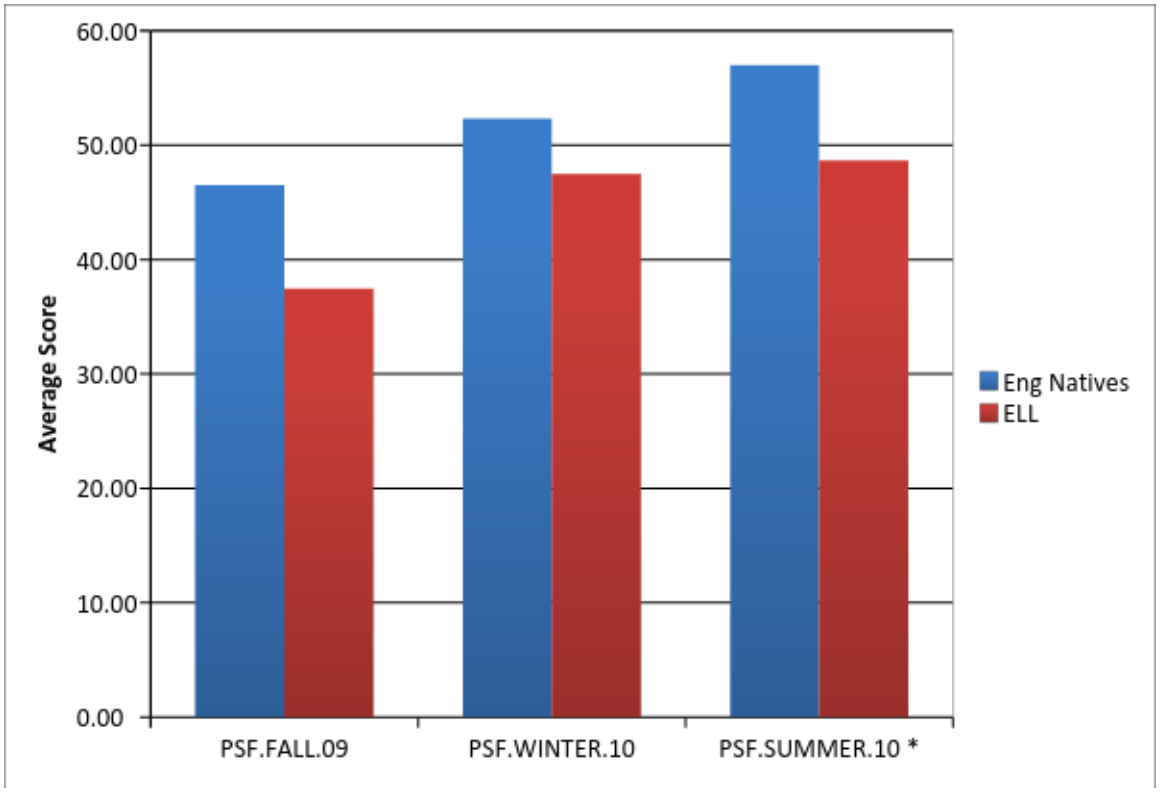

Figure 8. Average PSF Scores for 2021 Dual ELL and Dual English Natives
*P ≤ .05

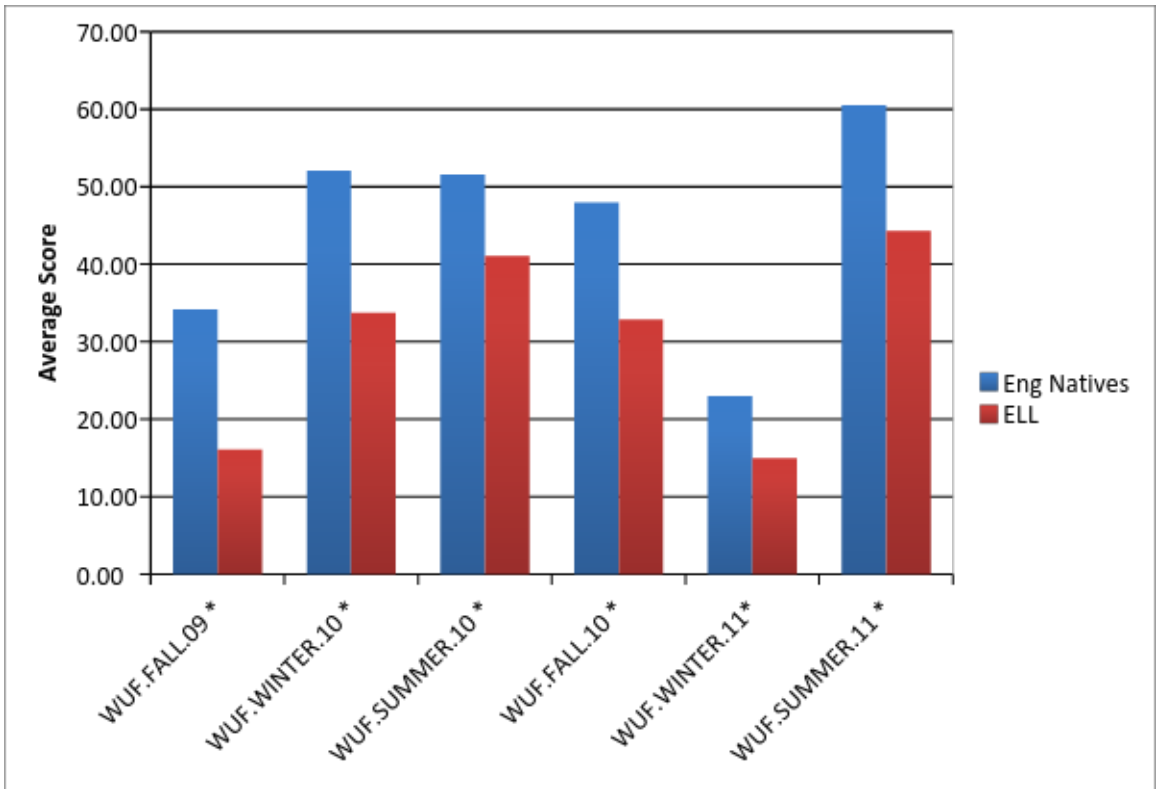

Figure 9. Average WUF Scores for 2021 Dual ELL and Dual English Natives
*P ≤ .05
(Class of 2022)

Independent sample t-tests were run on the DIBELS assessment for the class of 2022.

There was no significant difference in the summer 2011 assessment of

- NWF CLS t(29)=1.053, p=.310;
- NWF WRC t(29)=.920, p=.365.

There was significant difference in the final assessment in the winter of 2010 of

- ISF t(29)=3.101, p=.004;

There was significant difference in the fall 2010 assessment of

- LNF t(29)=2.346, p=.026;

There was significant difference in the summer 2011 assessment of

- PSF t(29)=1.125, p=.044;
- WUF t(29)=3.899, p=.001
- ORF t(29)=2.373, p=.024.

The average scores for all assessments for the class of 2022 can be found in the following: ISF Figure 10, LNF Figure 11, PSF Figure 12, WUF Figure 13, and ORF Figure 14.

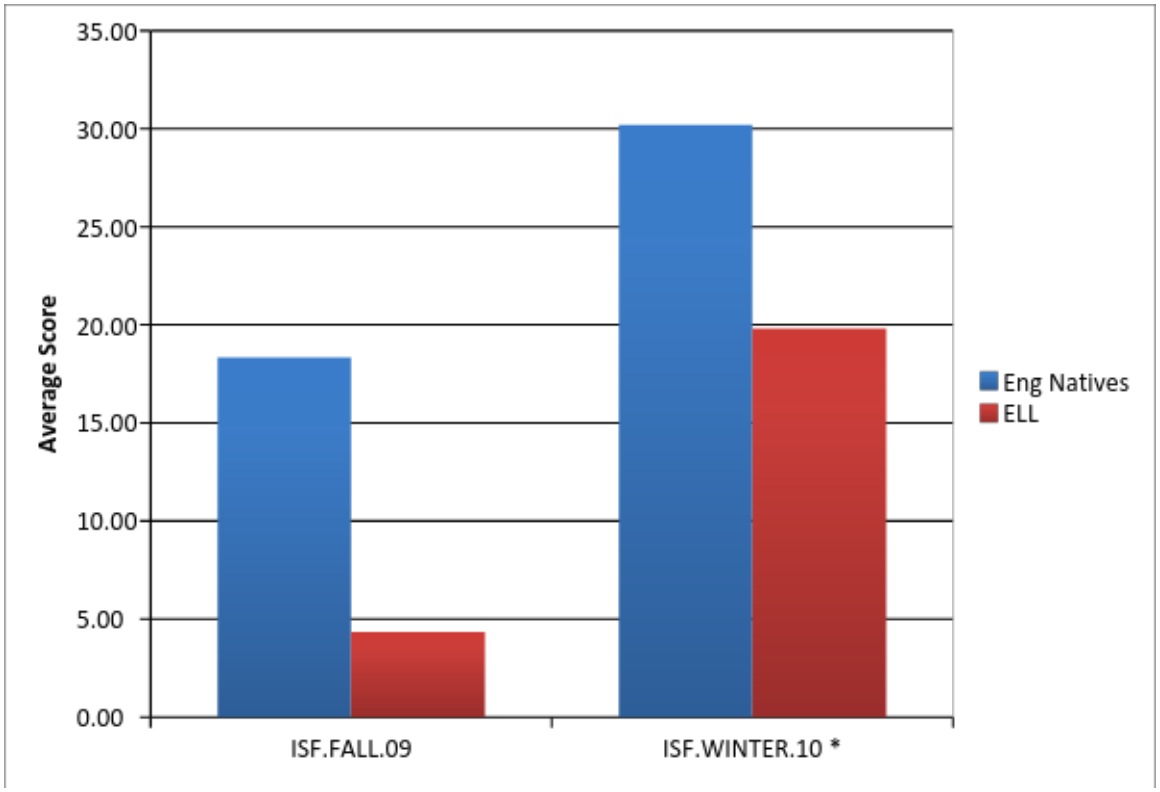

Figure 10. Average ISF Scores for 2022 Dual ELL and Dual English natives
*P ≤ .05

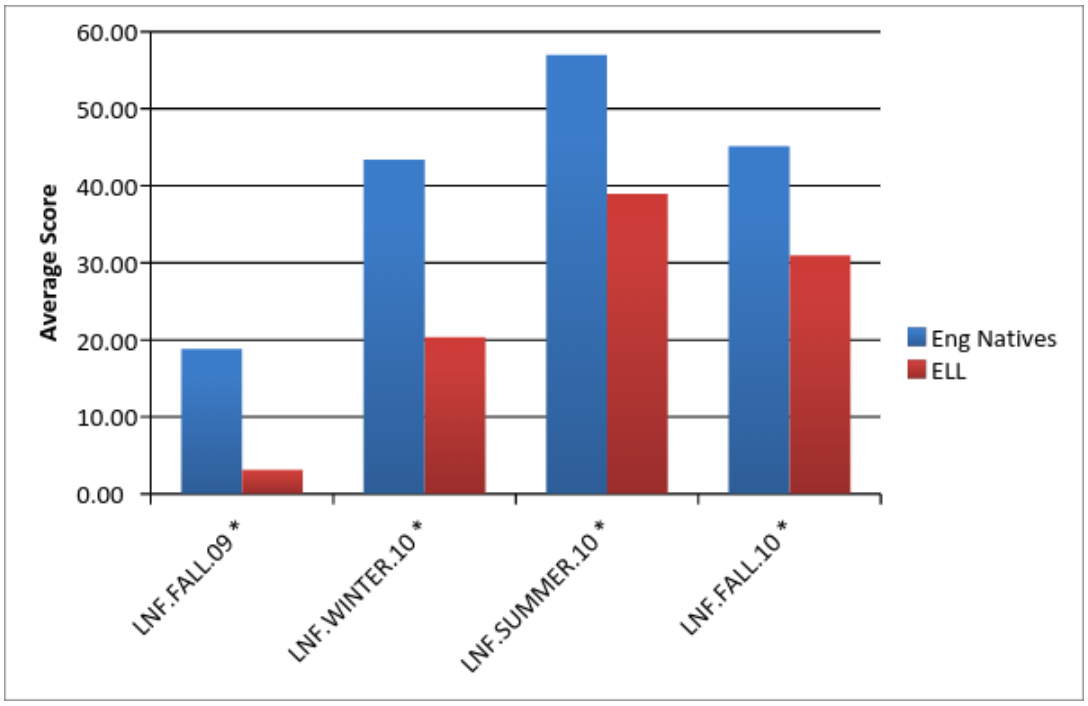

Figure 11. Average LNF Scores for 2022 Dual ELL and Dual English natives
*P ≤ .05

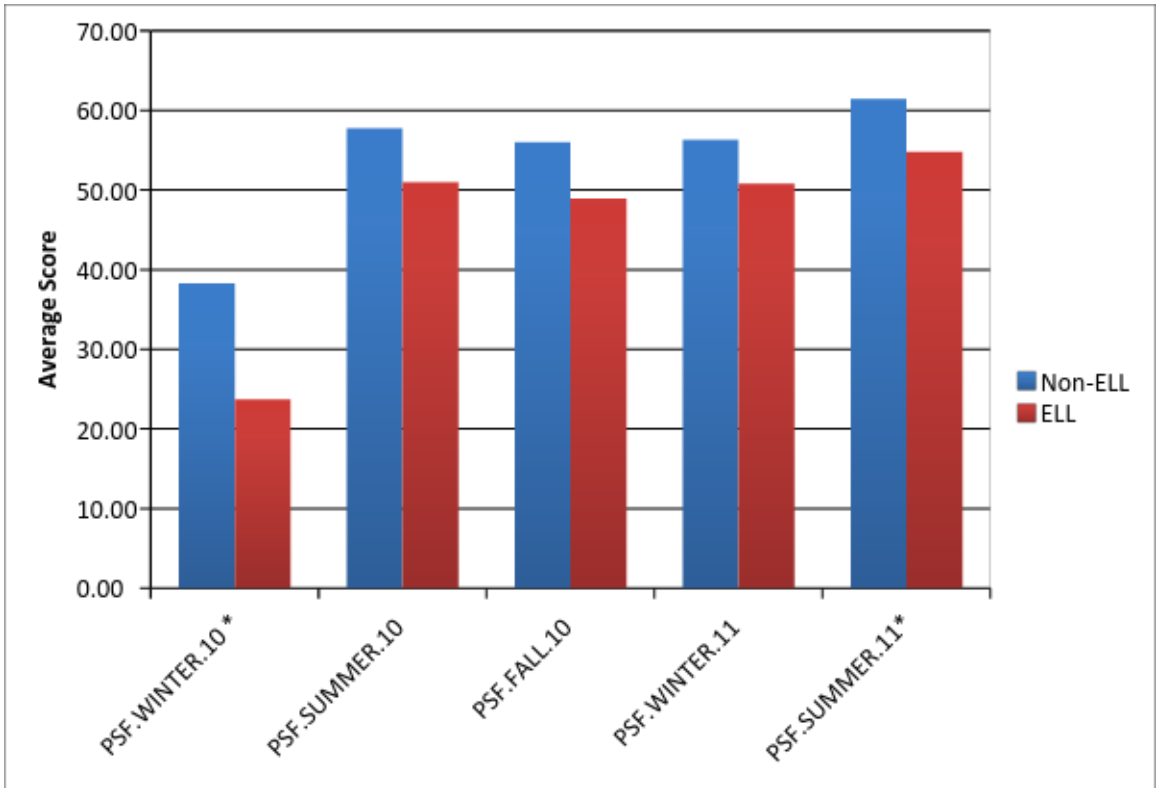

Figure 12. Average PSF Scores for 2022 Dual ELL and Dual English natives
*P ≤ .05

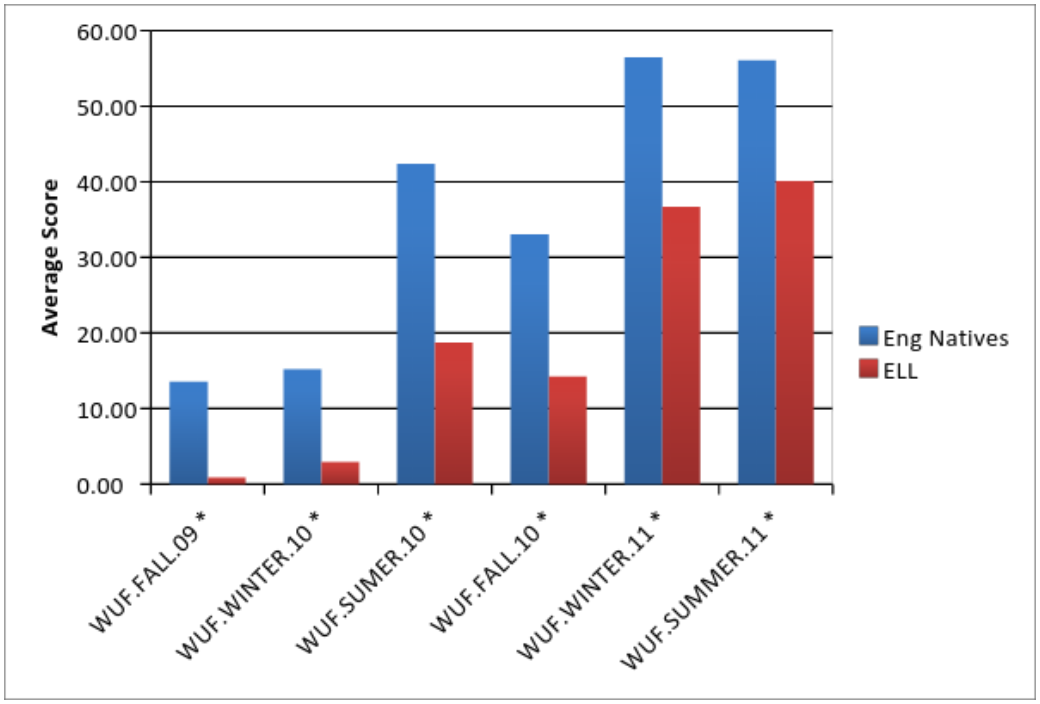

Figure 13. Average WUF Scores for 2022 Dual ELL and Dual English natives
*P ≤ .05

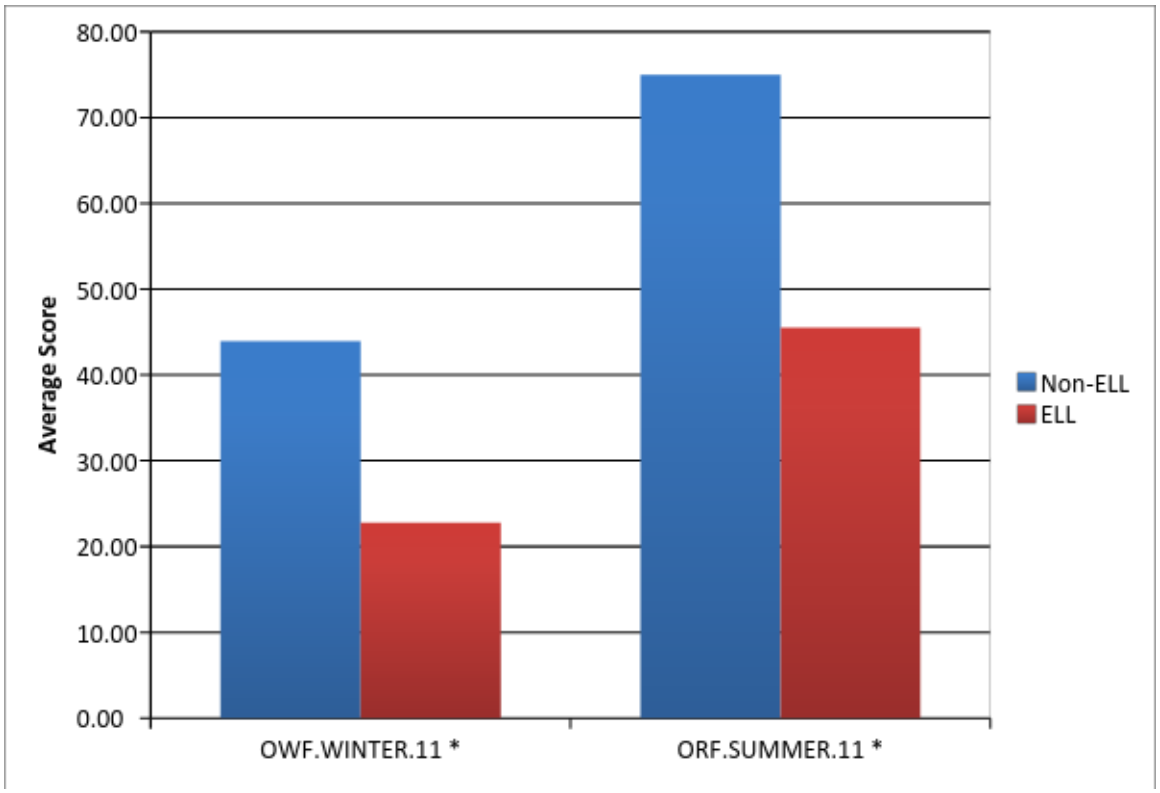

Figure 14. Average ORF Scores for 2022 Dual ELL and Dual English natives
*P ≤ .05

Discussion

Dual Immersion vs. Mainstream

(Class of 2021)

There were differences on the NWF-CLS (Correct Letter Sound) assessment of Dual versus mainstream students (See Figure 1). In the Fall of 2009 the Dual students on average scored 3.66 points higher than their mainstream peers, in the Winter of 2010 the Dual students score on average 3.77 points higher than their mainstream peers, in the Summer of 2010 the Dual students scored on average 24.23 points higher than their mainstream peers and in the Fall of 2010 the Dual students scored on average 27.33 points higher than their mainstream peers. This fails to support my hypothesis that

mainstream students would achieve higher literacy scores than their Dual Immersion peers. Fabiano-Smith and Goldstein studied how "between-language interaction" contributes to phonological acquisition in bilingual Spanish-English speaking children (2010, p. 160) In this study they showed that there are shared sounds between English and Spanish and unshared sounds independent to each language. There are 15 shared sounds between English and Spanish, nine sounds specific to English, and five sounds specific to Spanish. Fabiano-Smith and Goldstein found that sounds that are phonetically similar between the two languages are more easily accessed and therefore cross over into the "phonetic contexts of both languages" (2010, p. 161). Since Dual Immersion students receive literacy twice a day, whereas mainstream students receive it once a day, the Dual Immersion students have more practice and interaction time with both English and Spanish sounds. This study supports Fabiano-Smith and Goldstein's research that observed difference in the current study. Cárdenas -Hagan and Carlson (2007) did a study to examine ELL students and the effects of initial L1 and L2 proficiencies with the language of instruction and their development of early literacy skills and the L2. Cárdenas-Hagan and Carlson found that Spanish-speaking students with high Spanish letter name and sound knowledge tend to show high levels of English letter name and sound knowledge (2007). This study also supports the findings that ELL students in Dual Immersion have higher letter sound knowledge than their mainstream ELL peers due to the NWF-CLS scores. It is probable that this is due to the fact that Dual Immersion students have more interaction with letter sounds and are therefore more able to transfer the similar sounds between languages.

(Class of 2022)

For the Class of 2022 there was no significant difference on any post assessment. This fails to support my hypothesis that mainstream students would achieve higher scores than their Dual Immersion peers. This supports the idea that the Dual Immersion program is demonstrating success since Alanis showed that Dual students would not achieve similar scores to their mainstream peers until the 5th year of the programs implementation (2000). Since Dual Immersion students in this case are performing at the level of their mainstream peers it shows that the program is not impeding their English literacy development and additionally is aiding in their efforts to become bilingual.

Dual ELL vs. Mainstream ELL

(Class of 2021)

Several independent sample t-tests were run for the dependent variables: DIBELS and WIDA assessment there was significant difference found for the class of 2021. Figure 3 shows that ELL students in the mainstream classroom scored on average 33 points higher than their ELL peers in Dual Immersion on the speaking portion of the WIDA assessment. This along with the gap in scores from the Oral Language assessment show that the ELL students in Dual Immersion are in need of vocabulary development and focused instruction on speaking. Seeing that their NWF-CLS scores are significantly higher again shows that instruction in literacy twice a day in addition to the shared sounds between Spanish and English are increasing the Dual Immersion students' letter sound knowledge.

(Class of 2022)

Several independent sample t-tests were run for the dependent variables: DIBELS assessment and WIDA Access assessment with the independent variable type of student (Dual ELL or Mainstream ELL). No significant difference was found consistently across independent variables for the class of 2022 (See Table 3 and 5). That is, the hypotheses were not supported by the t-tests, as there were no differences in the means on these analyses. This is consistent with Ridley's study, which reported no difference between a class of students that enrolled in a Dual Immersion program in Kindergarten through the study's completion time of the third grade year (2005). Similar findings were also found by Zehr who studied a group of students in Dual Immersion up through their fourth grade year. Compared to their mainstream classroom peers, Dual Immersion students showed no significant difference between the groups (Zehr, 2010). This study would seem to support Zehr and Ridley's findings that, even though Dual Immersion offers a chance for students to become bilingual, it does not have a significant impact on their English language and literacy.

Dual English natives vs. Mainstream English natives

For both the class of 2021 and 2022 there was no significant difference between Dual English natives and mainstream English natives. This fails to support my hypothesis that mainstream English natives would achieve higher literacy scores than their Dual Immersion peers. There may be no advantage in their native languages development, but the Dual English natives are becoming bilingual and biliterate which is

an advantage in the long run over being monolingual (Schwartz, 2011). Aspects of being bilingual that this study did not assess, such as improving early brain development because of the regular use of two languages and becoming globally minded, are also seen as advantages that English natives in the Dual Immersion program have over their mainstream peers (Schwartz, 2011).

Dual ELL vs. Dual English natives

(Class of 2021)

Researchers have noted a significant difference between ELL students and their native English-speaking peers when ELL students are only provided with ELL-pullout or transitional bilingual education (Thomas & Collier, 1997). Looking at the effects of Dual Immersion education in the class of 2021 there was still a significant difference in PSF and WUF from the pretreatment assessment to the post treatment assessment. At the pretreatment assessment of PSF, p=.020 and at the post assessment p=.027. Looking at Figure 12 you can see that the ELL students are consistently behind the English Natives. At the pretreatment of WUF, p=.000 and at the post assessment p=.002. At the pretreatment English natives were on average 9.05 points ahead of their ELL peers on PSF. At the post assessment English natives were on average 8.33 points higher than their ELL peers. At the pretreatment assessment of WUF English natives were on average 18.04 points higher than their ELL peers. At the post treatment assessment of WUF English natives were on average 16.29 points higher than their ELL peers. WUF is measured in number of words spoken to describe a word. Increasing ELL students'

vocabulary seems to be the way to decrease the gap between these two populations. Lucy Calkins said, "In schools, talk is sometimes valued and sometimes avoided, but - and this is surprising - talk is rarely taught. It is rare to hear teachers discuss their efforts to teach students to talk well. Yet talk, like reading and writing, is a major motor - I could say *the* major motor - of intellectual development" (2001, p. 226)

(Class of 2022)

At the pretreatment assessment there was a significant difference in every assessment of DIBELS. At the post treatment assessment only NWF-CLS and NWF-WRC showed no significant difference. At the pretreatment assessment of ISF, p=.001 at the post treatment assessment p=.004; at the pretreatment assessment of LNF, p=.001 and at the post treatment assessment, p= .026; at the pretreatment assessment of WUF, p=.002 and at the post treatment assessment, p= .001; at the pretreatment assessment of PSF, p=.012 and at the post treatment assessment p= .044; at the pretreatment assessment of ORF, p=.018 and at the post treatment assessment p=.024. The Dual Immersion program does not show that it is decreasing the gap between ELL and native English speaking students. This fails to support my hypothesis that the Dual Immersion program would shrink the gap due to ELL students being taught in their L1. With this I am lead to consider whether or not ELL students are coming in with a developed L1. The ELL population in Jackson is now showing that parents of our current ELL students were raised in the United States and not in Mexico, therefore not being educated in Spanish. If the parents don't have a developed Spanish language it is logical

that their children don't enter school with a developed L1 and therefore are essentially learning two languages that they are not fluent in while in the Dual Immersion program.

Addendum

This research addendum is being addressed at the request of the ELL coordinator of Jackson Elementary. After discussing the results of the speaking portion of the WIDA exam, he requested that I look at the data for the following years to see if there continued to be a gap between ELL students in Dual Immersion and ELL students in the mainstream classroom. I ran independent sample t-tests on the 2012 speaking scores of the WIDA assessment and found no significant difference $t(14)=.807$, $p>.724$. During this year mainstream ELL students were still on average higher than their Dual Immersion peers, but the gap has been shrunk from 33 points to 3 points. The shrink in p-values and average scores leads me to believe that with more time in the program students develop a stronger speaking ability. This confirms what other studies have said pertaining to Dual Immersion students closing the gap and eventually surpassing their mainstream peers.

Limitations

Although this research reached its aims there were still some limitations. First due to unforeseeable circumstances 15 students left through the two-year study and therefore reduced the study population. If the study would have involved more students it could have given a fuller comparison. The second is that this was at the very beginning of

the programs implementation. It is hard to say, but many kinks likely have been worked out since the first year and current research would give a more accurate look at how the Dual program performs with more fidelity. In the first year a Scott Foresman curriculum was used for the Spanish side of the program. This curriculum was written for native Spanish speakers and therefore did not have an appropriate vocabulary for students learning Spanish as their second language. Since then the program has been rewritten to more appropriately meet the students' needs. As well, there has been question as to whether or not students should see their Spanish teacher speaking English. Most of the Spanish teachers currently have a stringent rule that they will not speak any English in front of their current or past students, this was not the case at the beginning of the program. The purpose is to show their teachers value Spanish and show that it is a language with power that needs to be spoken and not just learned. Additionally it aids in a true 50:50 program model Another important point to look at is that the class that started Dual Immersion in 1st grade (the class of 2021) had already completed a full year of Kindergarten in English. I would have preferred to have a group that had not been exposed to English only education for a year to have a cleaner and more cohesive look at the program. An additional data resource would have been beneficial to look at both the Dual and Mainstream student reading achievement. With only one test to look at the entire Dual and mainstream population it is hard to say if results are based on the test or actual achievement.

Looking back if I could have started over I would have compared the Dual classes to their entire grade level. This would have given a wider perspective as how they did

compared to their peers instead of just looking at two classes. I was trying to have similar group sizes, but should have looked at having a larger study group for more accuracy.

In the future I think it would be worthwhile to keep following our ELL students in Dual Immersion to see where their literacy levels fall in 5th, 8th, and 12th grade compared to their mainstream peers. With a full 12 years taught in their L1 I foresee bigger gains in the long run. I also think it is worthwhile to start looking at Spanish language acquisition across Dual Immersion. At this point in the program the Spanish language assessment has changed every year and wasn't in place at the start of my study. For the 2012-2013 year they have implemented the Fountas and Pinnell assessment. This is being used for assessing literacy in the mainstream classrooms as well and gives teachers a view at students' accuracy, comprehension and fluency. In the future this will give a better comparison of Spanish and English language acquisition and literacy, and overall, a more complete picture of the Dual Immersion program.

At Jackson Elementary a struggle that has become apparent is retention of native speaking teachers. In our desire to have native Spanish speakers teaching the Spanish side of Dual Immersion we had initially committed to only hiring teachers from Mexico, California, or Texas. In the first four years of our program we have lost two of our original Spanish-speaking teachers.

Conclusions & Recommendations

So often immediate answers are wanted to answer whether or not a program is successful and this is an example of where speed is not going to guarantee that students succeed. Looking at the program when the first, second, and third years of the program are in high school will be a much more valuable evaluation of the program. I believe that the Davey Jackson Elementary Dual Immersion program is showing successful in that at such an early stage in the program there is no significant difference between Dual students and mainstream students consistently across grades.

My recommendations for the future success of the Dual Immersion program follow: the first is that the district focuses on staffing and teacher retention, the second is to develop programmatic features such as an English Language Development block and the third is to implement formative and summative assessment measures across both languages.

1. Keeping highly qualified teachers who are committed to the program and the community will be essential in making the program successful. Finding students and parents who want to be a part of the program isn't difficult, finding teachers who will stay in Jackson despite extreme weather and high cost of living will be a challenge in the long run. I recommend that was discontinue the policy of only hiring out of Mexico, California, and Texas and instead take a philosophy of hiring fluent Spanish speakers. It is important for our ELL students to see people that look like them in teaching positions, but I also think that it is important that they see people that don't look like them speaking

their language. When they see that all people find Spanish as a language of power then they too will see it, and use it as such.

2. When looking specifically at programming features I think it would be useful to implement a specific English Language Development (ELD) block for the ELL population in Dual Immersion. Seeing the gap between ELL and English natives in Dual Immersion program on the WUF assessment of DIBELS and the gap between mainstream ELL and Dual ELL students on the speaking portion of the WIDA assessment leads me to believe that ELL students need more focused vocabulary instruction in order to be able to shrink the gap between ELL and English natives. Saunders, Foorman and Carlson (2006) studied Kindergarten students in Immersion and Dual Immersion classrooms and whether or not a separate language block was present. They found that classrooms with a separate ELD block "had higher English oral language composite scores, higher word identification scores and a tendency toward higher letter sound scores" (Saunders, Foorman & Carlson, 2006, p. 197).

3. I think it is important that the program use assessments that are available in both English and Spanish. The American Council on the Teaching of Foreign Language (ACTFL) has the Oral Proficiency Interview (OPI), an assessment used in looking at second language acquisition. Currently it is only used in Spanish language acquisition at, but is available for English as well. Using this across languages will help better monitor language growth in both Spanish and English and help to better guide instruction. As well, it is important to keep this assessment consistent. Since the implementation of Dual Immersion the school has changed the Spanish assessment used every year. Keeping a

consistent assessment will make the school better able to assess the success of the Dual Immersion program in the long-term.

Acknowledgements

First I would like to thank Russ Lord for challenging me to choose a thesis over a Plan B option. It has been a long route, but one that has turned out to be so much more rewarding than I initially thought. Russ stuck by me through the many years of planning and writing this thesis and when I would send numerous emails with tedious questions he'd always respond and finish up by mentioning the upcoming snow report. Secondly I'd like to thank Ellen Kappus for her unending excitement about the study, her texts reminding me to stop whatever I was doing and get to work, and for dropping articles on my desk with notes suggesting it might obtain to my work. Living in a town where extreme sports dominate every waking moment makes it hard to sit down, focus and get to work. The accountability she gave me, kept me inside many weekends, but did help me get to the point of finishing this study. Also I'd like to thank Tony Hecimovic for jumping on board later in the game when needed. Lastly I'd like to thank my Mom, without whom none of this would have happened. When out of nowhere I said I wanted to move from Kentucky to Wyoming to work on my masters, she did beg me not to leave, but let me make my own path in life. Thank you for supporting me through this journey and trying to show excitement as I ramble on about my work.

References

Alanis, I. (2000). A texas two-way bilingual program: Its effects on linguistic and academic achievement. Retrieved from http://brj.asu.edu/v243/articles/ar2.html

Anthony, J. L., Solari, E. J., Williams, J. M., Schoger, K. D., & Zhang, Z. (2009). Development of bilingual phonological awareness in spanish-speaking english language learners: The roles of vocabulary, letter knowledge, and prior phonological awareness. *Scientific Studies of Reading*, *13*(6), 535-564. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/10888430903034770

Broner, M. A. (2000). English and spanish language use by three fifth graders in a full Immersion classroom. Retrieved from http://www.carla.umn.edu/Immersion/broner.html

Calhoon, M. B., Al Otaiba, S., Cihak, D., King, A., & Avalos, A. (2007). effects of a peer-mediated program on reading skill acquisition for two-way bilingual first-grade classrooms . Retrieved from http://www.jstor.org/stable/30035562

Calkins, L. (2001). *The art of teaching reading*. (1st ed.). New York, NY: Addison-Wesley Educational Publishers Inc.

Cárdenas-Hagan, E., Carlson, C. D., & Pollard-Durodola, S. (2007). The cross-linguistic transfer of early literacy skills: The role of initial L1 and L2 skills and language of instruction. *Language, Speech & Hearing Services in Schools, 38*(3), 249-59. Retrieved from http://search.proquest.com/docview/232582752?accountid=14793

Chiappe, P., Chiappe, D. L., & Gottardo. A. (2004). Vocabulary, context and speech perception among good and poor readers. *Educational Psychology, 24,* 825-843.

Christian, D., Howard, E. R., & Loeb, M. I. (2000). Two-way Immersion education: Students learning through two languages. Retrieved from http://www.jstor.org/stable/1477345

Christian, D. (1996). Two-way Immersion education: students learning through two languages. Retrieved from http://www.jstor.org/stable/329058

Christian, D. (2001). Dual-language education for english language learners. Retrieved from http://www.jstor.org/stable/3588433

Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. Retrieved from http://www.jstor.org/stable/1169960

deJong, E. J. (2002). Effective bilingual education: From theory to academic achievement in a two-way bilingual program. *Bilingual Research Journal*, *26*(1), 19.

Diaz-Rico, L. T., & Weed, K. Z. (2006). *Crosscultural, language, and academic development handbook, the: A complete k-12 reference guide* . (3rd ed., pp. 138-172). Boston, MA: Pearson Education.

DIBELS 6th edition benchmark goals. (2012). Retrieved from https://dibels.uoregon.edu/benchmark.php

Fabiano-Smith, L., & Goldstein, B. A. (2010). Phonological acquistion in bilingual spanish-english speaking children. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=47903304&site=ehost-live

Good III, R. H., & Kaminski, R. A. (1996). Assessment for instructional decisions: Toward a proactive/prevention model of decision-making for early literacy skills. *School Psychology Quarterly*, *11*(4), 326-336. doi: 10.1037/h0088938

Han, W., & Huang, C. (2010). The forgotten treasure: Bilingualism and Asian children's emotional and behavioral health. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=50615373&site=ehost-live

Maxwell, L. A. (2012). 'Dual' classes see growth in popularity. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=74027079&site=ehost-live

McKay Wilson, D. (2011). Dual language programs on the rise. *Harvard Education Letter*, *27*(2), 1-4. Retrieved from http://www.hepg.org/hel/printarticle/496

Metsala, J. L. (1997). Spoken word recognition in reading disabled children. *Journal of Educational Psychology*, *89*(1), 159-169. doi: 10.1037/0022-0663.89.1.159

Morison, S. H. (1990). A spanish-english Dual language program in new york city. Retrieved from http://www.jstor.org/stable/1047625

Pascopella, A. (2011). Successful strategies for english language learners. *District Administration*, *47*(2), 29-44. Retrieved from www.DistrictAdministration.com

Potowski, K. (2004). Student spanish use and investment in a Dual Immersion classroom: implications for second language acquisition and heritage language maintenance. Retrieved from http://www.jstor.org/stable/3588719

Ransom, C. (2008, May). *Tcsd Dual Immersion program overview*. Retrieved from http://www.tcsd.org/education/components/scrapbook/default.php?sectiondetailid=9511

Ransom, C. (2010). *Di parent handbook 2010-2011*. Retrieved from http://www.tcsd.org/education/page/download.php?fileinfo=RElfUGFyZW50X0hhbmRib29rXzIwMTAtMjAxMS5wZGY6Ojovd3d3MTAvc2Nob29scy93eS90ZXRvbmNvdW50eXNkL2ltYWdlcy9hdHRhY2gvOTUxMS8yMzM1OF85NTExX2F0dGFjaF8xMzMucGRm

Ransom, C. (2012, May). *Teacher recruitment brochure*. Retrieved from http://tetoncountysd.wy.schoolwebpages.com/education/page/download.php?fileinfo=VGVhY2hlcl9SZWNydWl0bWVudF9Ccm9jaHVyZV8yMDEyLnBkZjo6Oi93d3cxMC9zY2hvb2xzL3d5L3RldG9uY291bnR5c2QvaW1hZ2VzL2F0dGFjaC8xNjIyMy8yMzM2OV8xNjIyM19hdHRhY2hfNTc2LnBkZg==

Reese, L., Goldenberg, C., & Saunders, W. (2006). Variations in reading achievement among spanish-speaking children in different language programs explanations and confounds. Retrieved from http://www.jstor.org/stable/10.1086/503637

Ridley, N. D. (2005). *The effects of bilingual education on reading test scores: Can Dual-Immersion support literacy for all students?* University of North Texas). *ProQuest Dissertations and Theses,* 67-67 p. Retrieved from http://search.proquest.com/docview/305429615?accountid=14793. (305429615).

Safty, A. (1991). French Immersion in canada:theory and practice. Retrieved from http://www.jstor.org/stable/3444544

Saunders, W. M., Foorman, B. R., & Carlson, C. D. (2006). Is a separate block of time for oral english language development in programs for english learners needed?. *The Elementary School Journal*, *107*(2), 181-198. Retrieved from http://www.jstor.org/discover/10.1086/510654?uid=2134&uid=2&uid=70&uid=4&sid=21101422150477

Schwartz, C. (2011, Aug 15). Why it's smart to be bilingual. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=64135067&site=ehost-live

Thomas, W.P., & Collier, V. (2002). A national study of school effectiveness for language minority students' long-term academic achievement. Santa Cruz, CA and Washington, DC: Center for Research on Education, Diversity & Excellence. Available: http://www.crede.ucsc.edu/research/llaa/ 1.1_final.html.

Unger, M. (2001, November). Equalizing the status of both languages in a Dual Immersion school. Retrieved from http://www.carla.umn.edu/Immersion/acie/vol5/Nov2001_EqualStatus.html

Westly, E. (2011). The bilingual advantage. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=63884757&site=ehost-live

Wida:access for ells. (2011). Retrieved from http://www.wida.us/assessment/ACCESS/

Willig, A. C. (1985). A meta-analysis of selected studies on the effectiveness of bilingual education. Retrieved from http://www.jstor.org/stable/1170389

Wilson, D. M. (2011, March/Apri). *Harvard education letter*. Retrieved from http://www.hepg.org/hel/article/496

Wu, J. (2005). A view from the classroom. Retrieved from http://search.ebscohos.com/login.aspx?direct=true&db=f5h&AN=15274669&site=ehost-live

Zehr, M. A. (2010, Apr 21). Bilingual education, Immersion found to work equally well. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=50314692&site=ehost-live